COVER SHEET

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An Interpretative Framework for Practice-Based Research in Architectural Design

Dr Jill Franz
Associate Professor in Interior Design
School of Architecture, Interior & Industrial Design
Queensland University of Technology
Brisbane, Australia

Introduction

This paper recognises practice-based research as an interpretative, non-dualist activity reflecting, implicitly for most, the dialectic nature of human experience and experiencing. It argues that the failure to explicitly acknowledge and appreciate this impedes acceptance of research through practice as a legitimate form of research, simultaneously creating confusion and frustration for research students and supervisors. Current reliance on and recourse to models of research, education and practice that overtly favour dualist, deterministic models of human interaction and knowledge are understood to compound these difficulties.

In the first instance, then, an interpretative framework for practice-based research demands an exploration of related issues and conceptions, ontologically and epistemologically. To illustrate and exemplify this, the paper commences with an overview of personal PhD research undertaken to identify the various ways in which design is understood by architects and designers in the context of their interior architecture practice. Associated with this is a review of methodological research in architecture undertaken since the Second World War. In addition to conceptions of design, the review also highlights various conceptions of research and demonstrates how these are related to specific conceptions of design, and, more fundamentally, to specific conceptions of person-environment interaction.

The review identifies the limitations of methodological research in architecture in producing a relational description of design providing support for empirical research underpinned by a compatible philosophical and methodological framework. As the discussion in this paper will show, the findings provide a highly descriptive and theoretically sound basis for substantiating the value of research through design. It is argued that one of the findings which describes design in existential and interpretative terms represents a practice-based research model of design. However, in recognition of the criteria used to allocate and distribute research funds and to define the parameters of doctoral research programs, the practice-based model of design is initially considered in terms of its contribution to research through design process rather than research in design practice. The contribution is exemplified by reference to a specific PhD study that I am supervising. Based on an interpretative, existential view of design, the study recognises the art aspects of design and the potential of art making as well as design making. Specifically, it regards them as appropriate, effective ways of identifying new relationships and contributing in an original and productive way to the discipline and society in general.

Dominant approaches in methodological research in architectural design

The review of methodological research in three dimensional design and architecture conducted since the Second World War and described in my PhD thesis revealed three major orientations: a technical orientation; a conceptual orientation; and a philosophical orientation.

Technically oriented research was a response by researchers confronted with the challenge to improve design efficiency and effectiveness. Influenced by the rationalistic and behaviouristic thinking dominant in the 1950s, these researchers conceptualised designing from a prescriptive perspective where the emphasis was on the formulation of a systematic or 'rational' approach to problem solving and decision making. Underlying this was the notion that all phenomena – including human behaviour – could be understood, represented and

controlled mechanically through either practical or theoretical models. Developments in operations research and cybernetics contributed directly to the research undertaken to formulate a systematic method of designing. In accordance with the model, designing was viewed in terms of a sequence of discrete activities involving analysis, synthesis, and evaluation. Despite a realisation of the deficiency of this model in situations of complexity, novelty and uncertainty, the mechanistic appreciation of human interaction continued to inform research, particularly that concerned with computer technology and management theory.

For some researchers, the failure of the technical approach was attributed to a lack of understanding of designing behaviour. As such, research became more *conceptually oriented* with researchers utilising one of two major frames-of-reference: a psychological frame-of-reference, or a sociological frame-of-reference. Research carried out with a psychological frame-of-reference focused on various aspects of design behaviour and design situations. Initially, researchers were preoccupied with using information-processing theory to develop a human problem-solving model of designing. The inadequacy of the model in ill-defined situations prompted researchers to look more closely at the nature of design problems. In general, they agreed that designers are required to manage problems that possess no definite criterion for testing a proposed solution. Responding to this, researchers concentrated on the information needed in architectural designing to define the problem to such a degree that an appropriate outcome was possible. Researchers also worked from the premise that designing is an activity different from other forms of activity. One distinguishing factor identified by researchers is the way in which designers rely on conjecture for determining paths of action. The 1980s saw the development of several models of architectural designing a few of which theoretically and descriptively recognised the interpretative nature of human interaction and experiencing.

The sociologically framed studies conducted in design emphasised aspects of the design context as opposed to the designer. Essentially, there were two major foci: a substantive focus incorporating studies of how people respond in particular social settings and a methodological focus incorporating studies of the cultural aspect of design. While sociologists and sociologically-aware designers acknowledged the social aspects of design and designing, there was and still is a tendency for designers and design researchers to disregard or play it down.

Several *philosophical* studies in design were carried out with the aim of explicitly focusing on research and the development of knowledge for designing. Underlying all research, including that of an epistemological nature, are assumptions regarding the relationship between human beings and the world. Despite extensive acknowledgement of ontological concerns in sociology and psychology, there had been very little explicit response by the design disciplines such as architecture. At the time of my study most had tended to borrow from research that was either rationalist oriented or empiricist oriented. Very few studies reflected holistic views characteristic of existentialist phenomenology and hermeneutics. (Refer to Franz (1994, 1998) for detailed information on research conducted since the Second World War).

It was my conclusion that despite different orientations and frames-of-reference, methodological research in architecture primarily operated on the premise that designing is a mechanistic, deterministic process, a process in which either the person or the environment is emphasised. In addition to the conception of designing as mechanistic and deterministic, researchers were understood to actively maintain other conceptions reinforcing the dualist perspective. These include: an atomistic conception of the world, a rationalistic conception of research and knowledge, and a conception of architecture in purely physical and/or formal terms. While the need to balance this type of research with ‘non-dualist’ oriented research had been identified by several researchers, nothing substantial or of real practical benefit eventuated. My thesis argued that this occurred because the research was not underpinned by an ontological, epistemological and methodological framework compatible with a contextual, relational view of person-environment interaction. It sought further to address this through a phenomenographic study of design in the context of design practice (Franz 1998).

An alternative interpretative, contextual approach to and understanding of design

In ontological terms, the basic tenet of phenomenography is the assumption that interaction and subsequent understanding encompasses and reflects a dialectic relationship involving person and environment. How people experience the world is understood to be integrally connected with what they experience (Marton 1988). Epistemologically, knowledge is regarded as a specific type of orientation towards some aspect of the world, the resultant understanding reflecting something of the aspect and the context including the person engaged with the aspect (abstract or concrete, living or inanimate). Methodologically, phenomenography is compatible with this philosophy because it attempts to capture first-hand the 'what' of the experience as well as the 'how'.

The findings of the study are presented as four categories representing the different ways in which designers understood design in the context of their practice. These are labeled the *commodity* category, the *production* category, the *structural* category, and the *experiential* category.

In the *commodity* category, design is understood as the placement and/or supply of an object, material or service for accommodating specific functions. On a personal level, it is seen as a way of making a living. In this respect, designers focus on existing objects, materials and skills concerned about their potential to satisfy demand in the most profitable way. The design process undertaken by such designers is characterised by a surface, commercial approach that is reciprocally aligned with an atomistic, literal appreciation of what is understood to constitute a design situation.

An alternative understanding is presented in the *production* category which, while incorporating aspects of the commodity category, moves beyond this in specific structural ways. In this category, design is understood as the production rather than just selection of an object. The use of the term production is used to describe a staged and mechanistic approach corresponding to an appreciation of a design situation as the aggregate of what are conceived to be discrete elements. Generally described, it is a surface approach producing a literal outcome influenced in part by a focus on instrumental and practical forms of interaction.

This category contrasts with the *structural* category in which design is understood as the generation of an environment for supporting practical, instrumental and psycho-social interaction for the client and primary users. For the designer, decisions are constrained by the project, the practice and the profession. From a strategic perspective, design is undertaken in a rationalistic and discriminatory way correlating with a hierarchical understanding of the design situation. The outcome is conceived in formal and operational terms.

In terms of the review of methodological research in architecture presented in the previous section, it is apparent that the production category and the structural category respectively reflect technically oriented research and conceptually oriented research in terms of their emphasis and underlying mechanistic, deterministic understanding of design. While the experiential category can be compared in part with philosophically oriented research through its direct focus on process, the category's underlying conception of design is interpretative and contextual rather than rationalistic and deterministic. As the following description will show, the experiential category gets closer than any other research to a practice-based research model of architectural designing.

The dominant feature of the *experiential* category is an understanding of design as facilitating intrinsically meaningful interaction involving people and environment. This can be understood through an explicit focus on how designers exhibiting an experiential conception of design organise and manage the design situation as well as on how they understand the design situation. In terms of the former which will be the focus of this paper, designers are motivated by the desire to understand and to structure this understanding in intrinsically meaningful ways for everyone concerned in the design process and its outcome. Labeled as deep in structural terms, the approach is not confined to gathering detailed and extensive information, although this is certainly an important part of it. It is also characterised by a desire to identify

underlying intentions (a hermeneutic approach). Associated with this is the desire to understand how elements connect with each other; elements which include people and their way of understanding the world. The intention to understand something deeply correlates, in this category, with a holistic approach that extends and incorporates designers' everyday lives. This approach is accompanied by a concern for honesty, simplicity and an extensive appreciation of the situation. The specific nature of the approach in this category is conveyed more fully by the procedural and metacognitive way (reflection in and on action) in which designers deal with specific situations in design projects.

At the commencement of the project, designers have tentative proposals in their mind based on a match between currently held models and expectations of the project. In this category, the images are temporarily set aside while the designers attempt to impartially and extensively explore the situation in its broadest possible sense (if you like, a grounded theory approach). Here, the focus is on the parts and their connections. At first, this involves discovering, representing and analysing the site, associated activities and values, and current building technology. In considering the site, designers take wide, yet extensive, views. As well as examining the site and its technology in concrete terms, they also investigate the social and cultural context. In addition to surveying the site from a personal perspective, designers seek the views of other people who have experience and expectations of the site. Overall, the exploration is aimed at understanding the significance of the site historically, currently, and potentially from a variety of viewpoints and frames-of-reference. While the site is being surveyed, the design team analyses the activities that the site is to accommodate and facilitate, and the values it is to acknowledge. Designers appreciate that activities reflect values and values explain activities. Additionally, there is the recognition that activities and values can be addressed at the individual as well as collective level. To understand this more fully, designers observe what the users are actually doing in their current context (that is, they undertake empirical research). As well as operational aspects, designers are also interested in understanding the users and what they do from a broader cultural viewpoint. The broader understanding contributes to making specific forms of interaction more meaningful in that it accepts that they are, in some way, connected to other aspects of human interaction and to existence as a whole. The technological aspect of the context is addressed, in part, when designers survey buildings in relation to materials, spatial and structural arrangement, and services. It is also addressed when exploring the activities and the resources required for facilitating performance. In addition, technology is addressed when the design process itself is considered in explicit terms. Apart from identifying who will constitute the design and construction team, there is usually an attempt to formally establish a collaborative information network incorporating the client, the user and the designer. The network fulfills various roles. In the first instance, it facilitates decision making in situations in which various individuals and groups are involved. Being hierarchical, it provides a basis for prioritising the information and assessing the parts that appear to be most significant. Secondly, it provides a framework for identifying and confirming information to do with activities and the like, both initially and during the course of the project. Designers recognise that it takes simulation and testing over an unpredictable but limited period of time to arrive at a reasonable appreciation of the situation. The resulting sense of ownership prepares the users for interaction in and with the new environment.

Once some information relating to the site, activities, values and technology has been identified and represented (and assuming the designers have not withdrawn due to a conflict of goals and values), its significance as a whole and as a part of a greater whole is pursued more earnestly. Specifically, this involves establishing a structure by identifying the most important parts and allowing these to constrain the remainder. In the case of an existing building, this is considered to be a highly constrained aspect of the site and technology. In addition to being internally constrained, it is also externally constrained vis a vis its place in a social, cultural and physical context. The activities and their associated technology also represent highly constrained aspects of the situation. To establish further constraints, designers test various models with the constraints already identified. The mental pictures set aside during the initial exploration may now be brought into play. Even if the picture 'fits' for the part emphasised, designers are reluctant to discontinue the more open process, preferring to maintain ambiguity and take advantage of unexpected occurrences.

In this category, the process of formulating a whole from established constraints (semi-resolved parts) depends on an already partially formed structure; a structure that is so abstract that it has the potential to be an all-encompassing organising principle for uniting the various relationships. The all-encompassing hierarchical structure is found in various ways. It may be taken from initially identified mental pictures developed through designers' experiences or knowledge of similar situations. A framework can also be developed from a highly constrained aspect of the current situation or from a combination of experience and the current situation. The structure is understood to be tentative, giving designers the choice to change or replace it in the course of the feedback gained through continuous simulation (imagining and representing) and testing. One of the constraints used in the testing is the client and their response to what is being proposed. To facilitate the client's understanding of the proposal, designers employ various techniques including analogies and non-jargonistic language. In hastening this process of shared understanding, designers sketch alternative proposals in the presence of the client. While the proposals are usually in plan form, the designers' description enhances the imaginary journey in a three dimensional and experiential way. The collaboration produces a synergy that provides clarification and stimulation as well as making the client feel an important part of the process.

Also significant is the way in which designers shift their viewing distance of a particular aspect of a situation. For example, at the same time designers are concerned with planning for activities, they are also addressing the relationship of the plan to the building in relation to its physical context. Correspondingly, there is another movement from the plan to its constituents; for instance, from the floor plan to a single room and its detailing. As well as shifting viewing distance, designers also shift their frame-of-reference, addressing the situation in physical and metaphysical terms. In addition to viewing filter, viewing distance, frame-of-reference and viewing time, designers adjust their viewing positions as exemplified in iterative movement between the second and third dimensions. The action described so far is premised by an attitude that recognises the need for patience and for changing one's relationship with the situation in such a way that other aspects become figural.

Overall, the process of providing for harmonious and meaningful interaction is multifaceted and iterative. With the focus on meaningful interaction, designers place considerable emphasis on expression and its potential to engage the user in a meaningful way. To reinforce a message and/or make a setting familiar to people, designers consider various forms of expression acknowledging the various ways in which people make sense of aspects of their world. Designers accept that the interior will be understood at a number of levels through the various senses. Specifically, designers rely on the tactile and auditory responses as well as the visual response to the environment to engage the user in a meaningful way. They also appeal to the kinesthetic sensation or bodily movement in and through the environment.

The experiential process of designing described here and more fully in my thesis provides a very detailed picture of what design is and could be, how it sits in relation to other forms of activity and, subsequently, how best to investigate it further. One of its most distinguishing features is that it deals with imagined experiences and environment and that it overtly embraces this and the opportunities this affords. A substantial amount of research in the physical and social sciences, and design, aims to identify elements and describe relationships with respect to existing or past situations, in other words, it deals with 'actuality', perceived or otherwise (Dilnot 1998: 5). As illustrated in the experiential category, the activity space is imagined and virtual. Designers assume uncertainty, novelty and complexity. They accept that the process, particularly in existential terms, does not and cannot seek to solve problems or reach an outcome suitable for a variety of people with their own expectations, abilities and needs, situated in dynamic, changing physical and social situations. Rather, designers attempt to open up possibilities through flexible design and the empowerment of the user in relation to the object and/or by orienting the user in a different way to life through the object, in much the same way as art.

This is not to say, however, that design is the same as art. A focus on the types of relationships each affords the user or viewer can be used as a basis for differentiation and comparison. The findings of my research support the view that people form different types of

connections with objects and environments, particularly those that are part of their everyday experience, and that these are integrally related with certain situations giving priority to one over another. For example, in interior architecture, the building and its internal environment are understood to be *practically* significant to the client, user and society through their potential to respond effectively to health, safety, comfort and operational demands. Most designers also recognise that environments and objects have *instrumental* value, for instance, as commodities in a commercial setting and that this has to be explicitly acknowledged through the design process. Objects can also be considered as extensions of self and group highlighting their *cognitive and affective* value. In interior architecture, this is addressed through the symbolic and expressive quality of the interior and to the way in which this acknowledges, through perception and cognition, current and potential expectations and values. Generally, buildings and interiors are considered to be integral parts of human experiencing and dwelling. In *experiential* interaction, the person enters into a dialogue with the context. What is made by people for people not only responds to current situations, it also provides people with the opportunity to discover new aspects of the world and themselves. However, objects do not do this independently. Meaning is understood to be mutually dependent on the interplay between people and some thing. In the interplay, various sides of the situation are exposed and debated and the interpretative nature of understanding revealed. The way in which this happens depends on those involved and the responsiveness of the environment. While design gives explicit emphasis to all four forms of subject/object relationship, art emphasises the last two, cognitive/affective interaction and experiential or existential interaction. Herein lies the difference between art and design, herein lies the potential contribution each has for the other.

The design process, exemplified in the experiential category, not only reflects many of the qualities of art; it also reveals many of the traditional attributes of research. As highlighted, it employs methodologies and methods associated with recognised forms of research. Overall, it is speculative, reflective, critical and rigorous in its iterative movement between imagining, representing and testing. It is, if you like, practice-based research. But, can it in this form constitute PhD research or research accepted as a part of academic endeavour? Indeed, given the current political and philosophical environment, is ‘practice-based research’ an appropriate term? To respond to these questions, demands an appreciation of the university research context and the forces impacting on it.

The context of PhD research

A considerable amount of the funding for research in Australian universities comes from the government or joint government-industry initiatives. Given this reliance, government bodies such as the Department of Employment, Education, Training and Youth Affairs (DEETYA), as it was formerly known, and the Australian Research Council (ARC) have been the chief arbiters of what constitutes research. For them, research is distinguished from other activities in terms of its focus on ‘original’ and ‘systematic’ investigation and its concern for producing outcomes that contribute practically and conceptually to disciplines’ and society’s stock of knowledge and that are verifiable publicly through publication and peer review. This latter aspect reflects a continuing reliance on traditional deterministic models of ‘scientific’ research. For Strand (1998), it is the main reason for the lack of acceptance of research in the creative arts as genuine research activity.

To understand this further, let us look more closely at the outcomes of art and design compared to those defined in traditional terms. In the experiential category, design invites and potentiates, through its multiple layers of expression, ambiguity and the associated opportunity to extend meaning in various ways. It has metaphoric or poetic significance. The outcome is also conceived as open-ended and unverifiable except for those who are experiencing the outcome in a lived way. This latter point highlights another issue, that of intention. In practice, designers do not set out with the prime purpose of adding to the stock of society’s knowledge. Indeed, from an interpretative viewpoint, knowledge is not regarded as a discrete entity (something that can be added to) or a mirror image of reality. Rather, it is viewed as being constituted in action and, as such, can be understood only in contextual, relational and qualitative terms. Having said this, buildings and environments are artifacts and do contribute culturally but no value is seen in practice in articulating how this might occur,

that is, a priori. This in no way reduces the value of what they do and the future contribution of their work.

The situation in academia is, however, different. In terms of higher research programs such as PhDs there are various stakeholders each with their own expectations of the investigation and its value. As a prime stakeholder, albeit one who is usually forgotten, the student expects the development of advanced research skills and knowledge within an area relevant to his or her discipline and a piece of paper ratifying this. Other stakeholders are the supervisor, the School, the University, the discipline and profession, the funding body in situations of scholarship, society and other researchers. The issue central to most of these players is the need to establish, almost immediately, evidence of the value of the research. Traditionally, the main mechanism for this has been that of publication and review by 'experts' in the field.

For PhD research of or about design or design related issues (what Wissler (1997) describes as Phase One type research and Strand (1998) as Conservative type research), the publication has traditionally taken the form of a written thesis outlining the research question or hypothesis, the need for the study, its approach in responding to the question or hypothesis, the findings and their contribution to knowledge in the area of the study. Criteria for assessing value in this form were traditionally those of reliability, validity, generalisation and reproduction understood in rationalistic and deterministic ways. An increasing emphasis on qualitative research in design is contributing to the development of other more interpretative indicators of rigor.

Another form of research that is becoming increasingly well established in the creative arts and just starting to be established in design is a Phase Two or Pragmatic type. According to Wissler (1997), Phase Two type research in the creative arts is characterised by the use of art making as a research methodology. He states that "…such research by an artist/researcher relies upon (a) the initial statement of a hypothesis, or set of issues, (b) an experimental phase in which these are explored practically through artistic processes and (c) the creation of an artwork which explores the refining of the original hypothesis. Eventually, (d) this artwork is displayed/performed in public in order to engage the crucial reception phase of artmaking; and finally (e) the whole process is described verbally in a report [or exegesis]" (p. 94). In this situation, the artwork is seen as an indispensable part of the research. The exegesis provides conceptual and potential practical access for other people wanting to know how the artist orchestrated his or her way through the situation. In design, I refer to this as research through design. This approach brings together in relative harmony the benefits of an in-practice, experimental, experiential approach with the constraints of the tertiary context previously described. A case in point is a current PhD research project that I am supervising.

In her quest to consolidate an existential and hermeneutic approach in design, Cathy Smith is exploring the interconnectedness between people and their experiences of designed objects and environments through both art making and design making accompanied in the final presentation by a written and graphically illustrated exegesis. The research is underpinned by an interpretative framework and has developed in response to the failure of research on existential phenomenology to provide conceptually consistent theory and methodology for architectural practice. She has chosen art, specifically installation art, as both a site and medium for exploration because it attempts, usually through the multi-sensory, interactive quality of the work, to overcome subject-object duality. Cathy's project will be undertaken in four stages. Informed by theoretical investigations of literature on dwelling and anecdotal, lived experiences of home found in stories and poetry, the first stage involves consideration and further exploration of seminal themes through site-specific art that she will produce herself. Participant feedback and personal reflection will then lead to the next stage involving the development of an architectural 'installation'. Feedback from this and the first stage will contribute in stage three to the development of a possible methodological framework for practice. The exhibition in stage four will present the direct lived and reflective experiences of stages one, two and three with the methodological framework for architectural practice. The exhibition will provide an opportunity for further feedback and consideration in the accompanying exegesis.

Another type of research identified by Wissler (1997) and Strand (1998) is a more liberal or research-in-the-discipline approach in which the artwork is the sole form of research publication open to ambiguous interpretation. In interior architecture, this could correspond to the construction of an actual interior environment open to public use. As mentioned previously this form of research presents problems in evaluating the work; both in identifying a focus for the examination as well as finding examiners with the required special type of expertise. In terms of the process of development, this is not revealed and made accessible to other researchers. It is possibly, therefore, a form of research best left to scholarly professional practice.

Having said this, it remains that an interpretative framework is the most appropriate for establishing a fertile and philosophically relevant basis for research about and through design, and for challenging traditional dualist models and preconceptions. As illustrated in descriptions of my PhD findings, an interpretative framework reflects the experiential and existential nature of person-environment interaction and its facilitation through design. This is beginning to be recognised and addressed through a pragmatic form of research combining a 'poetics' of inquiry with a critical, intellectual form of inquiry.

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